

モーリシャスのマングローブ生態系保全・再生と持続可能な利活用への技術支援と人材育成事業

Human Resource Development and Scientific Support for Conservation/Restoration and Sustainable Utilization on Mangrove Ecosystems, Mauritius

MOL Mauritius International Fund

for Natural Environment Recovery and Sustainability

Annual Meeting

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International Society for Mangrove Ecosystems (ISME)

Outline of the 1st year activity

(Fact findings and start the collaboration)

- 1. Current status (basic data collection):** Back ground knowledge of the Mauritius and the mangrove ecosystem. Environment, Distribution, Distribution Changes, Geo-history etc.
- 2. Detail structure at sites (field investigation):**
 - 2.1 Habitat structure by LiDAR
 - 2.2 Measure the water and sediment movement by water gage and trap
- 3. Relationships between the ecosystem and the residents:** environmental facts and the soft measure,
- 4. For future: Share the collaboration for** partnerships between both sides.
- 5. Reporting:** Some publishes in academic society and international behavior.

These activities completed with the strong support of MOL Mauritius, Reef Conservation, Ciel Group etc.

1. Current status (basic data collection):

Back ground knowledge of the Mauritius and the mangrove ecosystem.
Environment, Distribution, Distribution Changes, Geo- history etc.

Mangrove can survive only at the upper half of tidal zone.
It develops between land and ocean interaction zone.
The forest has a role of buffer and source of energy and nutrition.



**Micro-tidal area, Strongly cultivate and dense human pressure:
Limitation the suitable habitat
Rapid sea-level rise**

It is unknown how the Mauritius mangrove ecosystems will change.

1. Current status Forest distribution, AW3D data, Google Earth, World Imagery, Bibliography data check by GLOMIS and TroCEP in Mauritius.



Mangrove area: 240ha only. The distribution develops as narrow green belt . The width usually less than 50 meter. Inland side has been captures by artificial land. Located at micro tidal area: Tide amplitude tide smaller than 1m, current is slow, the area is also limited.

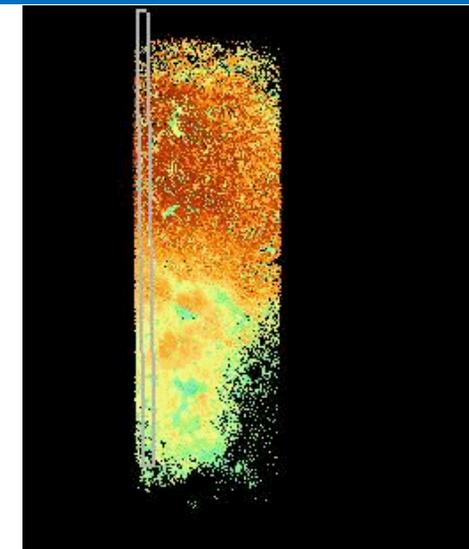
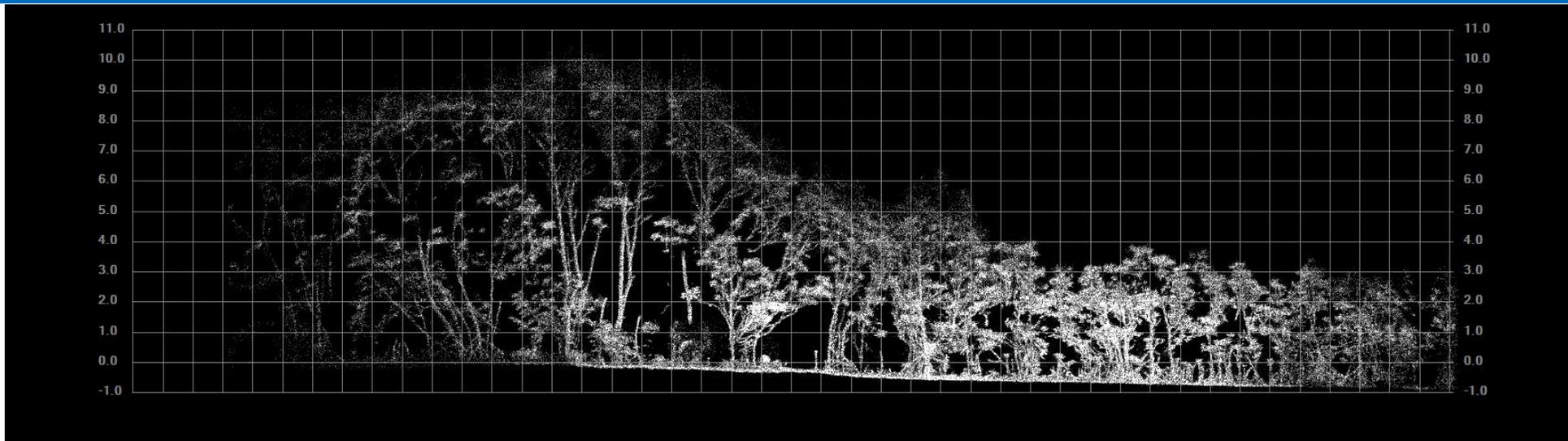
Actual mangrove forest majorly stable. The habitat develops from before 1000 years under the stable sea-level.



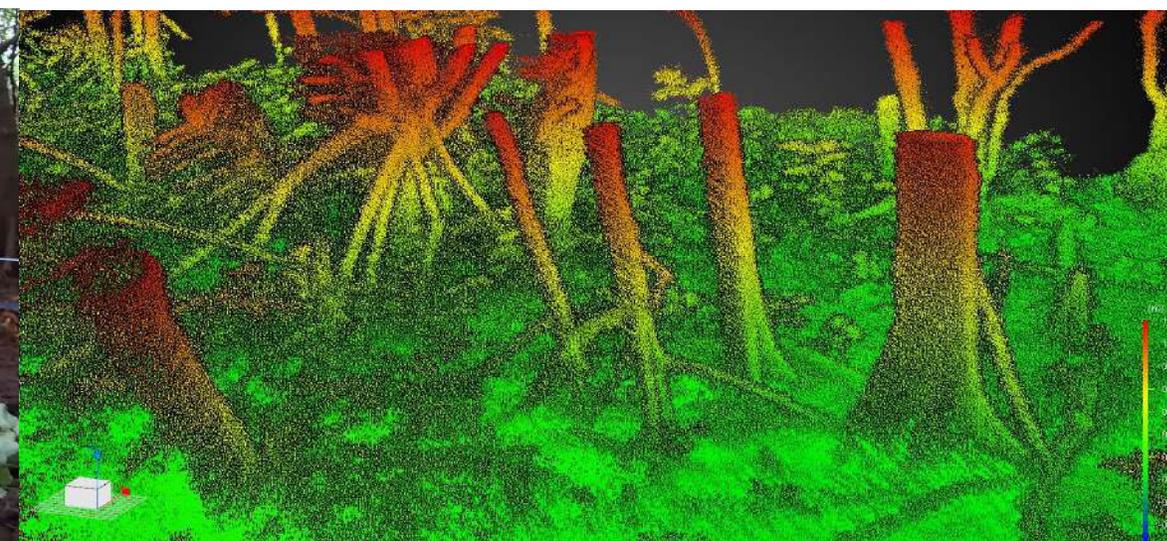
- Actual mangrove forest relatively well conserved.
- The base of the mangrove habitat established at about 1000 y.BP (C-14 Dating collected from Meville site), the forest developed in several 100 yrs (C-14 dating collected from Ferney site)

2. Detail structure at sites: 2.1 Habitat structure by LiDAR SLAM

Field investigations the actual situation of mangrove ecosystems has been carried at Ferney and Melville sites.

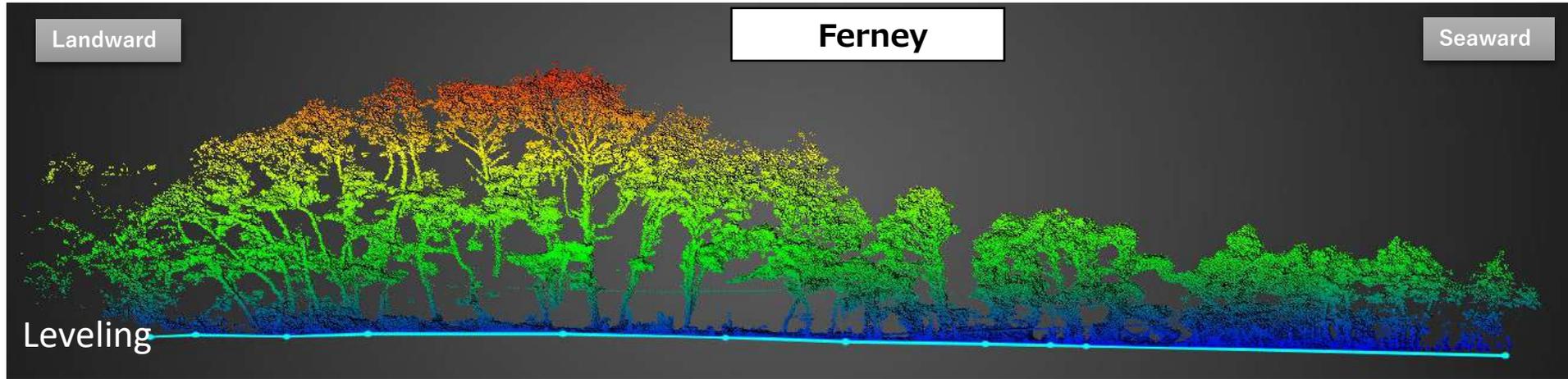


Dot matrix data and the display by 0.5m width cross profiles at Ferney river mangrove



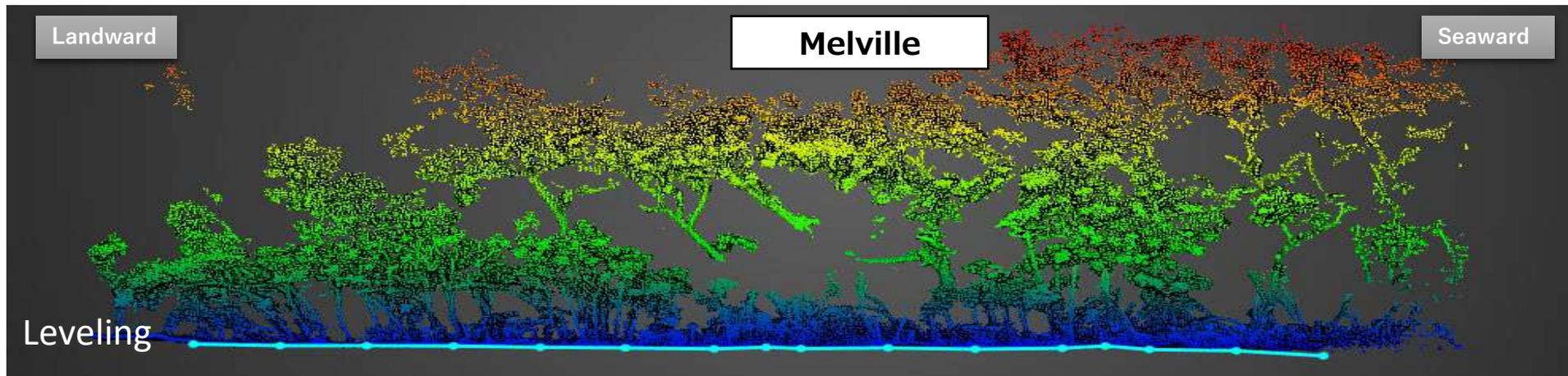
Actual photo image (left) and the Dot matrix data (right) at Ferney river mangrove

Compare between the leveling measurement and SLAM data



Grand level error comparison (cm)

Error value	
Mean	5.8
Standard	9.2
Minimum	0.1
Maximum	26.0
Number (n)	11



Tree height error comparison (cm)

Error value	
Mean	5.1
Standard	5.0
Minimum	0.4
Maximum	20.9
Number (n)	16

Comparison result by Nearest neighbor

→ Mean error 5cm, Maximum error 20cm, at the area of sparse dot distribution area.

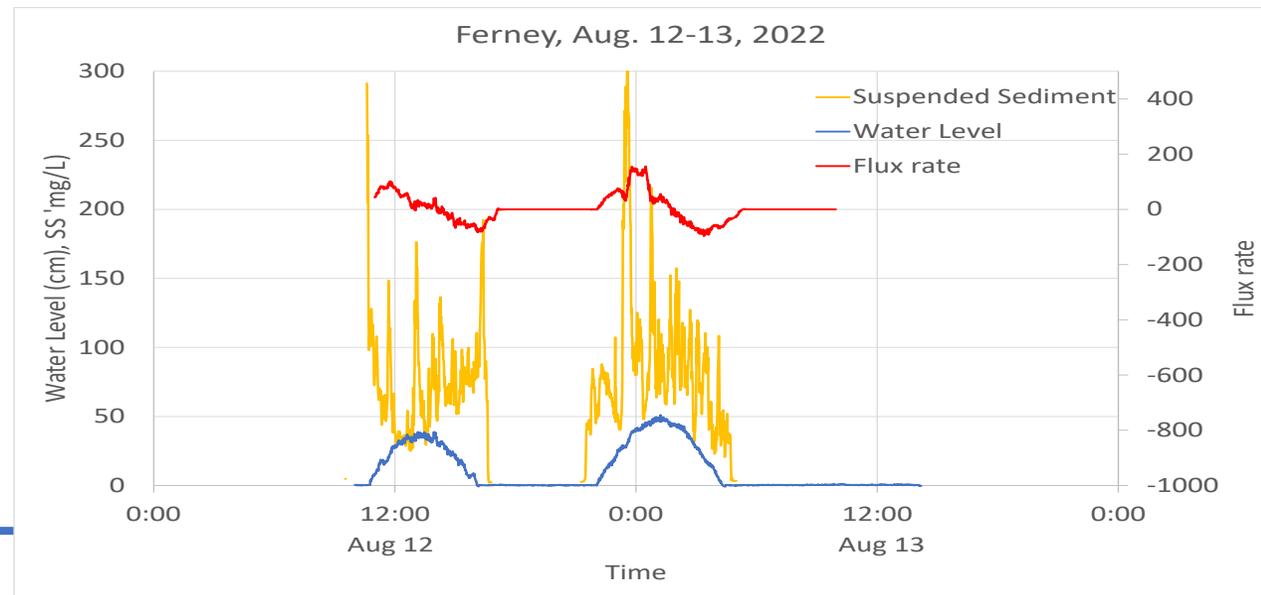
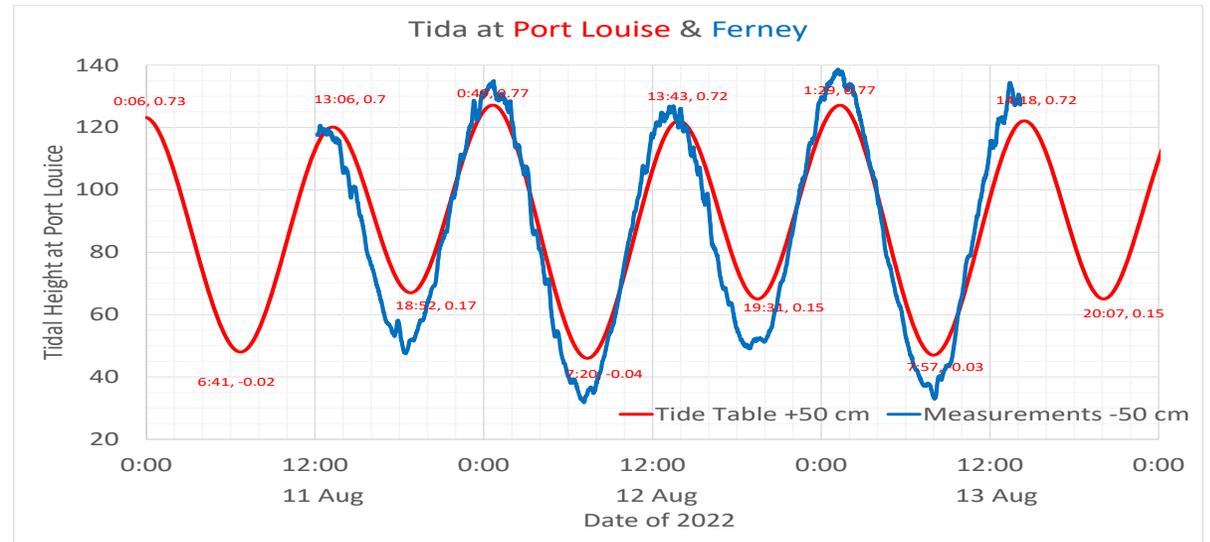
2.2 Measure the water and sediment movement by water gage and trap

Wave attenuation and sediment export Observation at Ferney



Future change

External \ Internal	Dense Forest	Sparse Forest
	High Waves	Erosion at front
Low Waves	Accumulation at back	Accumulation at front



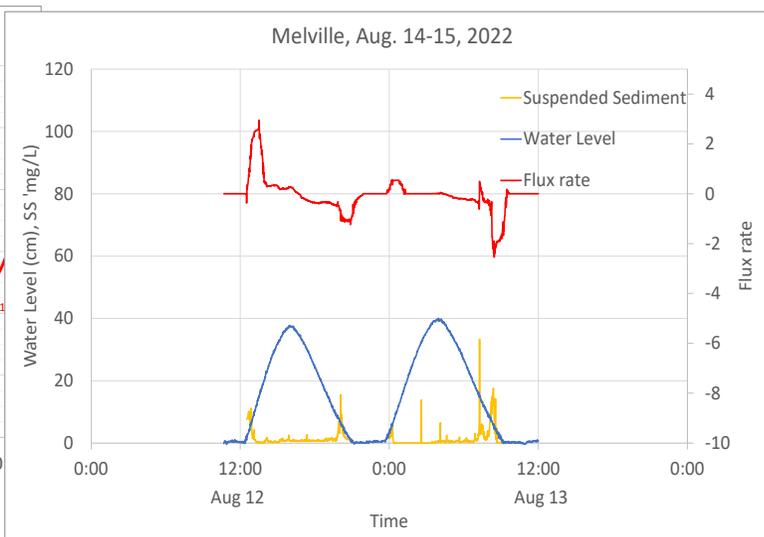
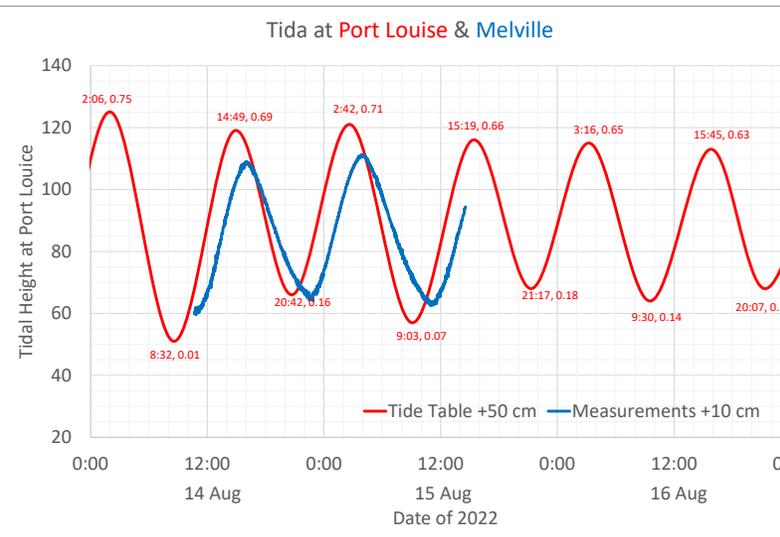
Observation at Melville



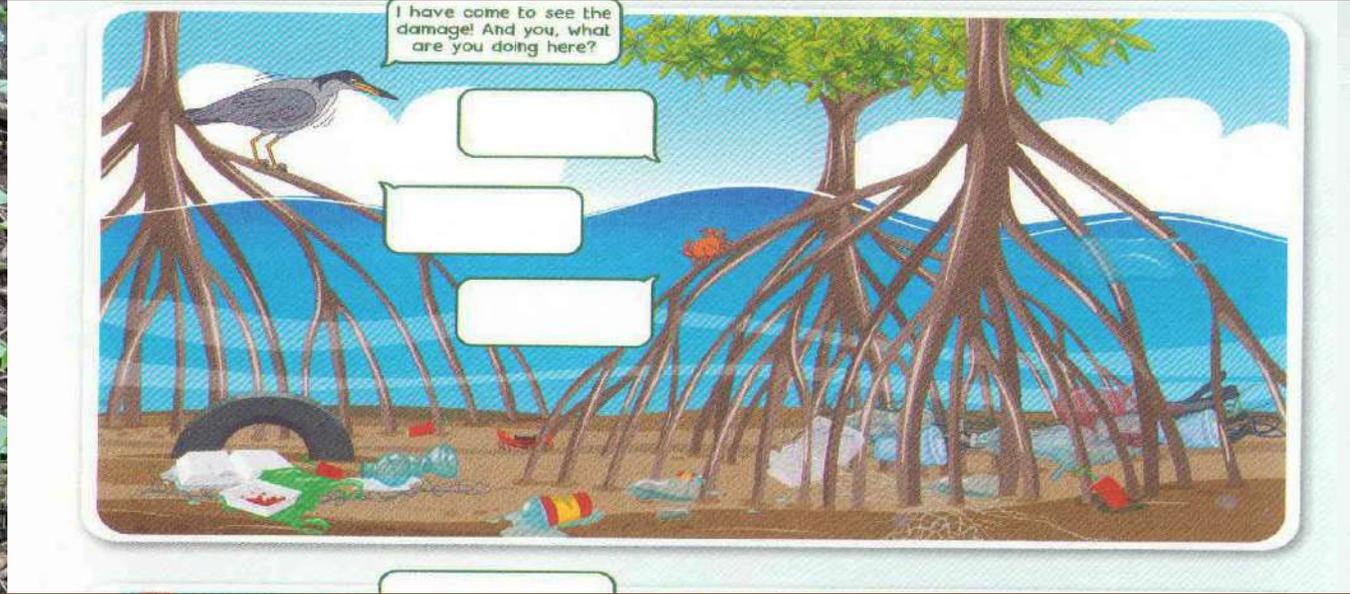
Future change



Internal / External	Dense Forest	Sparse Forest
High Tides / High Sediment supply	High Trapping	Medium Trapping
Low Tides / Low Sediment supply	Medium Trapping	Low Trapping



3. Relationships between the ecosystem and the residents: environmental facts and the soft measure, Drifted garbage: a symbol of the connection between residents and ecosystems



Mangrove habitat developing at the buffer zone of Land and Ocean interaction and human behavior overlapping.

The ecosystem is rich and complicate.

It's a place that doesn't matter to the indifferent. If you use it wisely, you will get rich, and if you use it incorrectly, it will be full of garbage.

4. For future: Share, collaborate for partnerships.



Sharing information is important as a starting point, and our immediate goal is to act together and achieve common understanding.

4. For next stage and for future earth

Our expected activities in Mauritius

“Human resource development and scientific support for conservation/restoration and sustainable utilization of mangrove ecosystems in Mauritius.”

Immediate works

Based on the clearance the current mangrove condition

- **Restoring mangroves at degraded sites,**
- **Monitoring degraded mangrove forests,**
- **Providing necessary information for raising a mangrove nursery,**
- **Preparing a draft conservation/management plan of integrated coastal ecosystems,**
- **Working together with concerned persons and stakeholders for human resource development to sustainably manage and conserve integrated coastal ecosystems.**

Year 2023: Continue the basic data collection, improve the collaboration with Mauritius NGO sides, establish the Platform for all stake holders.

Thank you for your attention